

Manitoba

REPORTS
OF CHIEF ENGINEER
ON THE
SURVEY
OF THE
NORTH SHORE RAILWAY,
AND OF
DIRECTORS
ON THE
PROPER RESOURCES OF THE SAME.



QUEBEC:
PRINTED BY AUGUSTIN CÔTÉ.
1864.

La. 10/10/10

REPORT

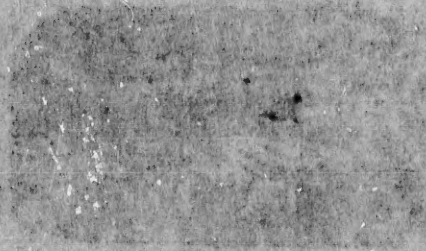
OF THE

STREET

NORTH SHORE RAILWAY

AND

THE RAILWAY OF THE

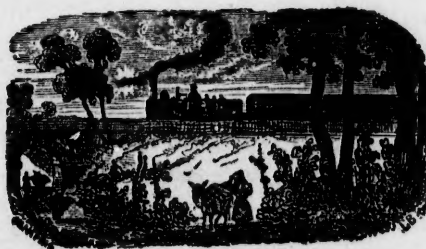


QUEBEC

1871

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QUEBEC:
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1854.

TO THE DIRECTORS
OF
THE NORTH SHORE RAILWAY COMPANY.

ENGINEERS OFFICE,

NORTH SHORE RAILWAY,

QUEBEC, 20th December, 1853.

Gentlemen,—In compliance with instructions transmitted from you by Hector L. Langevin, Esquire, Secretary of your Company, in July last, I immediately organized three efficient exploring parties: the first commencing at Quebec, running West; the second and third at Pointe du Lac, one running towards Montreal, the other towards Quebec to meet the first party.

From Quebec, the line that has been surveyed starts from the Terminus grounds that you have purchased at the junction of the St. Charles and St. Lawrence Rivers—at the head of St. Peter's street, Lower Town, close to the East India Dock, and in rear of the Bank of Montreal; continues along the south bank of the St. Charles river, and runs through St. Joseph Street (St. Rochs), then pursues a westerly course, direct through the valley of the St. Charles, between the Ste. Foye hills, and the hills of Ancienne Lorette, to the point marked B, on plan.

Another line has been surveyed from A, on plan, near Munn's Warf, crossing the St. Charles, near that place—and curving round by Mr. Parke's ship yard, where it takes a generally straight direction, recrosses the St. Charles at Mr. Duchesnay's, and joins the first line at B.—This deviation has been brought before your notice, should the route through St. Rochs be abandoned; the difference of cost and distance of one line over the other is appended.

To avoid the higher grounds on the south side of the Cap-Rouge River, and to join the valley on the north, along which the line continues its course, two curves are necessary, one of about $\frac{1}{2}$ a mile radius, the other of 11,460 ft. or nearly two miles, and two bridges. At each crossing of the last named river, the spans are so small, not exceeding in either case 40 feet, that their cost need not be considered, in comparison to that of bringing the Railway over the high grounds, which it is the object of this *détour* to avoid.

Following the valley on the north of this river, the line traverses its highest point rising gradually on the face of the Jacques Cartier hills (which are a continuation or spur of the Lorette Mountains, terminating at the St. Lawrence, near Pointe-aux-Trembles), and reaches their summit level (375 feet above low water at Quebec) at about one mile west of « Paradis' Mills. »

As regards cost of construction, the last two and a half miles may be considered as of the greatest importance on this division.

Running, at this point, in a direction almost north and south, elevated considerably, even at this their lowest point, above the level of the surrounding country, these hills offer an obstacle which will require a greater amount of labor to remove, than appears to present itself on any other part of the line. This point or « pass, » I am persuaded from a careful personal examination of the range, is the *best* that can be found.

At it, a passage can be effected, with a gradient of 50, if not 46, feet to the mile, and a curve of $1\frac{1}{2}$ miles radius. The above inclination, I am disposed to think, may be further diminished in the location of your line, and the cost of the work reduced.

While on this subject, I may remark that there is but one other « pass » by which a passage over these hills could be effected ; I allude to that known as « Doyles » about two miles more to the north. This summit is not to be approached by the route described above. To render it available, the course of the line of Railway would have to be brought close under Charlesbourg and Indian Lorette, and over the heights north of the Church of Ancienne Lorette.

With a view to ascertain the comparative merits of these two routes, Mr. Grubb was employed several days in running lines and levels in various directions endeavouring (but without success) to carry your road over these hills. No place could be found where your road could have a gradient of less than 50 feet in the mile, and this obtainable only at great cost.

In addition, I observed that the face of the country, along which the line should be carried, involved a detour extremely rugged, and as all cuttings required on the route for a distance of about six miles would most probably be in *rock*, I was led to the conviction that in point of economy both in the present outlay and future working of the line, the route by the Cap-Rouge River is preferable.

Continuing on from the summit level above alluded to, your road pursues a direct course in almost a westerly direction to the Jacques-Cartier River. Between these points, the works required will be of a very ordinary character.

The crossing of that river will require a bridge of three spans, the centre of which will be 100 feet and the two side spans 80 feet each; the height will be about 80 feet, but owing to the extraordinary facility which this locality offers of procuring the best materials (stone, etc.,) almost from the very site of the bridge itself, the cost of this structure will be comparatively small.

The site for this bridge is in the immediate vicinity of the present or «Black Bridge,» as it is called. No advantage can be derived from crossing more to the north of this; for, independant of the line being thereby some what lengthened, the River itself becomes wider and would require a larger bridge.

Southward there are but two points which *might* be made available. In both cases, the stream is generally confined to a narrow channel worn in the bed of the rock, but the banks are much *elevated* above the level of the water, and slope back with a considerable batter, leaving a chasm at the top to be spanned of not less than 500 feet in *either case*. In addition, the approaches to the river from the eastward would be over broken and rugged ground, while the country generally westward, as far as

Portneuf, would be far less favourable than that from the site selected.

Between this and Portneuf, the most direct is in other respects the *best* route.

The works on this section may be considered below the average with the exception perhaps of the excavation and embankment, which are necessary to carry your road over the ridge of sand extending along the western bank of the Jacques-Cartier River.

The next point worthy of remark is the crossing of the Portneuf River and valley. The nature of the surrounding country leaves us but little room for embarrassment in the selection of the site for this bridge.

The frequent occurrence of deep and wide ravines, exceeding in extent, in many instances the span of the valley of the river itself, forbids the adoption of any line more to the north, while the increasing width and depth of the valley, together with the rough and broken nature of the ground, are equally unfavourable to any line more to the south, or closer to the village and manufactories of Portneuf.

The best (and practically I may add) the only site is that which has been selected; it is situated about half a mile above the Paper Mills of Messrs. McDonald and Logan.

The bridge here will be about 450 feet in length divided into 3 spans, 150 feet each; the height above the bed of the river is about 98 feet. Stone for the piers and abutments may be procured in the immediate neighbourhood.

The line from this onwards takes a south-west direction, curving to the left round the rocky and hardwood range of hills in rear of the village of Deschambault, thence assumes a generally direct course over a level and easy country to Sainte-Anne, at which village it crosses the river about 2200 feet above the present bridge, where the river is about 600 feet wide, and at an average 5 feet deep. From Ste. Anne, the direction of the line is straight, over a level country, involving the lightest and cheapest quality of work, to Batiscan, where it crosses the river about 800 feet above the present bridge; the river is 650 feet wide, and 5 feet deep.

The general direction of the road from Batiscan to Three Rivers is along the base of the first *Côteau* or sand ridge, two or three miles north of the St. Lawrence, keeping its course along the flat country between Champlain and the broken country inland; this course is the *shortest* and the work of the lightest quality. At Three Rivers the line crosses the St. Maurice about 1000 feet above the present bridge, At this place the river is divided into two Channels by an Island, 900 feet wide, cultivated and inhabited; the aggregate breadth of the water ways is about 1600 feet, the average depth of the river about 8 feet.

Here the direction of the line is slightly altered, curving to the left, towards the town of Three Rivers to avoid a *Côteau* or ridge of sand which runs parallel to the course of the river. Along the foot of this ridge the line now takes its course, rising gradually and attaining the general level of the country at the summit of the *côteau* at Pointe-du-Lac, about 8 miles further on. From Pointe-du-Lac, the line, which is about half a mile north of the Church, takes nearly a westerly course for $2 \frac{3}{4}$ miles, where a curve is necessary of about 2 miles radius for a distance of 35 chains. Here we get a tangent or straight line for a distance of $15 \frac{1}{4}$ miles to about $1 \frac{1}{4}$ mile beyond Maskinongé, passing south of Yamachiche, crossing Rivière du Loup $\frac{1}{2}$ mile to the south of St. Antoine de la Rivière-du-Loup, and the Maskinongé 600 feet south of the existing bridge; the line then assumes a curve with a radius of 5,730 feet, and then continues in a straight course for a distance of 6 miles to a point 5 miles east of Berthier, and passing $\frac{3}{4}$ mile south of St. Barthélemi.

Up to this point, a distance of 33 miles from Pointe-du-Lac, only 3 curves are necessary of easy radii.

A straight line could be had to this, but it would pass through the low lands subject to be inundated occasionally by the waters of Lake St. Peter, and would be inconveniently remote from the towns or villages of Yamachiche, Rivière-du-Loup, Maskinongé and St. Barthélemi.

From this last mentioned place, two routes present themselves, one keeping about 3 miles to the north of Berthier, and

continuing along the Côteau to L'Assomption, leaving to the south a large « *Savanne* » in rear of Lanoraie ; the other close to Berthier and continuing on behind the villages on the St. Lawrence to Bout de L'Isle. I chose the *latter* line as presenting fewer obstructions.

In the neighbourhood of Berthier, the country is subject to periodical inundations. In the spring, the waters of the St. Lawrence rising above their ordinary level, owing to the *shoving* of the ice at some shallow part of the river below, dams back the river Berthier and small streams below the village. These, having but little fall, overflow their banks and extend themselves for some distance over the country. There is however a strip of land running parallel with the St. Lawrence which is elevated above the level of these floods. On this strip the town of Berthier is built, and on it the line of Railway is also laid out, passing about 600 feet to the north of the Church and continuing onwards in a straight course, to about a mile beyond the crossing of the small river St. Joseph.

The length of this tangent is about $9\frac{1}{2}$ miles. Near this point the line meets the first Côteau, and with a curve of over a mile radius for a distance of 40 chains, strikes on a straight course a tangent to Bout de l'Isle, a distance of $23\frac{1}{2}$ miles.

This tangent passes immediately south of the Lanoraie *Savanne*, crosses the Industry and St. Lawrence R. R. on its level, at about one mile north of the St. Lawrence, passes about $1\frac{1}{2}$ miles north of Lavaltrie and a mile north of St. Jaspice, leaving L'Assomption on the north and Repentigny to the south.

At Bout-de-l'Isle, several days were spent examining the river, and taking observations for the purpose of ascertaining the best crossing. After some consideration, I arrived at the conclusion that the best place for traversing the River-Des-Prairies, would be by passing over from the main land, diagonally across the islands of Bourdon, Ronde, and Bourgis ; the length of bridging by this means would be reduced to 1200 feet. This will probably be further reduced on the location by a more extended examination, and which I would suggest should be carried out the ensuing winter.

From the appearance of the shores, I am led to believe that a rock foundation will be had here, below the bed of the river; excellent limestone can be procured in the vicinity in large blocks, and all other materials necessary can be transported to the site by water.

The line beyond this place curves round with a radius of 2865 feet, for a distance of 2400 feet, whence it proceeds in a straight line for a distance of $3\frac{1}{2}$ miles, to a place about a mile north of Pointe-aux-Trembles, then curves for a distance of 23 chains, with a radius of 11400 feet; from here the line takes a direct course to Montreal, for a distance of $7\frac{1}{2}$ miles, crossing the Municipal boundary or City limits about 500 feet in rear of the Toll Gate.

The continuation of the survey extended up Craig Street, to form a connection with the Lachine and Grand Trunk, etc., Railways, but as the exact sites of the station grounds of the Grand Trunk and Montreal and Bytown Railways are not yet determined on, I leave the question open as to the precise ground your station should occupy in Montreal.

An alternative line has been explored and surveyed by Mr. Macquisten across the Islands of Montreal and Jesus, *via* Terrebonne, and connecting with the last mentioned survey, near Lavaltrie.

Mr. Macquisten's Report on the relative merits of these two lines, with comparative estimates and tables showing the difference in distance and expense of one course over the other, will be found in the Appendix.

I have also furnished Tables showing the proportion of tangents to curves and the degrees of curvature, and the ratios of inclination. An inspection of these will shew that they are remarkably favourable to the diminution of the future working expenses of your Railway,

Of the total distance to be located from Terminus to Terminus (one hundred and fifty-six miles), one hundred and thirty-five, or eighty-six and a half per cent, are on straight lines; the remainder, or $13\frac{1}{2}$ per cent only, is composed of curves of very large radii. Forty-nine miles, or 31 per cent, are horizon-

tal, of the remaining 107 miles, 44 are under 6 feet per mile, while only twenty miles or 12.8 per cent are over 20 feet to the mile.

In the accompanying approximate estimate, I have provided for a line of single track with the usual allowance of three per cent for sidings.

The guage to coincide with that of the Grand Trunk, Montreal and Bytown, and most of the other lines in Canada, viz., five feet six inches (5 ft. 6 in.) The track to be laid with a rail of 56 lbs. to the yard, and the works to be solid and substantial, but of a cheap and ordinary character. In contemplation of a second track being laid at some future period for which you may deem it advisable to provide at once in the case of all large bridges, I have prepared a table shewing the difference in their cost between a double and single track. This is table C in the Appendix. The abutments and piers of these bridges will be of stone, the superstructure of timber; all these materials may be found either on the spot or may be transported cheaply to their final destinations.

For all these works the estimate provides liberally. In establishing the prices on which it is founded, I have been guided by what has been actually paid for similar works on other lines taking little account of the singular advantages, which the average location of this line offers of reducing its cost below the average.

APPROXIMATE ESTIMATE.

ESTIMATE OF FIRST DIVISION, EIGHTHY-THREE MILES.

(Extending from Quebec to Pointe-du-Lac.)

| | | | | | | |
|--|-----------|---|------|---------|----|--------------|
| Clearing, (Acres)..... | 260 | a | 607 | 780 | 0 | 0 |
| Grubbing, (Rods)..... | 6,963 | a | 27 | 696 | 6 | 0 |
| Excavation Earth, (cub. yds.)..... | 1,171,499 | a | 17 | 53,574 | 19 | 0 |
| Do Rock..... | 8,917 | a | 57 | 9,229 | 5 | 0 |
| Do do..... | 55,788 | a | 476 | 12,552 | 6 | 0 |
| Do do..... | 4,791 | a | 276 | 598 | 17 | 6 |
| Earth excavation in foundations (cub. yds.)..... | 10,000 | a | 176 | 750 | 0 | 0 |
| Rock, do..... | 279 | a | 57 | 69 | 15 | 0 |
| Masonry, do..... | 2,629 | a | 107 | 1,314 | 10 | 0 |
| Do do..... | 2,063 | a | 1276 | 1,289 | 17 | 6 |
| Do do..... | 1,782 | a | 207 | 1,782 | 0 | 0 |
| Do do..... | 12,443 | a | 257 | 15,553 | 15 | 0 |
| Bridge superstructure lineal feet..... | 144 | a | 607 | 432 | 0 | 0 |
| Do do..... | 3,750 | a | 1007 | 18,750 | 0 | 0 |
| Coffer Damming,..... | | | | 3,000 | 0 | 0 |
| Breast work, superficial feet..... | 6,000 | a | 47 | 1,200 | 0 | 0 |
| Public Road crossings,..... | 20 | a | 607 | 60 | 0 | 0 |
| Farm crossings,..... | | | | 3,000 | 0 | 0 |
| Land, (Acres)..... | 1,080 | a | 2007 | 10,800 | 0 | 0 |
| Permanent way, (63 miles)..... | | | | 165,854 | 15 | 0 |
| Engineering Supervision, etc..... | | | | 4,000 | 0 | 0 |
| | | | | | | £303,293 6 0 |

APPROXIMATE ESTIMATE.

ESTIMATE OF SECOND DIVISION, SEVENTY-THREE MILES.

(*Extending from Pointe-du-Lac to Montreal.*)

| | | | | | | |
|---|---------|---|-----|----------|----|---|
| Clearing, (Acres)..... | 57,410 | a | 60 | 172 | 4 | 0 |
| Grubbing, (Rods)..... | 2,387 | a | 21 | 238 | 14 | 0 |
| Excavation, (Cub. Yards)..... | 931,686 | a | 17 | 46,579 | 16 | 0 |
| Masonry in mortar (do)..... | 8,402 | a | 30 | 12,603 | 0 | 0 |
| Dry masonry, (do)..... | 403 | a | 12 | 251 | 17 | 6 |
| Timber in foundations, (Cub. feet)..... | 9,387 | a | 17 | 469 | 7 | 0 |
| Do in small bridges (do)..... | 1,218 | a | 16 | 91 | 7 | 0 |
| Planking in foundations (sup. ft. b. m.)..... | 31,603 | a | 120 | 189 | 12 | 4 |
| Excavation in foundations (cub yards)..... | 5,307 | a | 16 | 402 | 15 | 0 |
| Truss Bridging (Lineal feet)..... | 1,860 | a | 120 | 11,160 | 0 | 0 |
| Coffer Damming..... | | | | 7,000 | 0 | 0 |
| Malleable iron bolts (lbs.)..... | 4,172 | a | 15 | 86 | 18 | 4 |
| Farm crossings..... | | | | 2,390 | 0 | 0 |
| 73 miles Permanent way a £1,998 5s. per mile..... | | | | 145,872 | 5 | 0 |
| Land damages, (Acres)..... | 890 | a | £10 | 8,900 | 0 | 0 |
| Engineering supervision, etc..... | | | | 4,000 | 0 | 0 |
| | | | | 240,407 | 16 | 2 |
| | | | | £543,696 | 2 | 2 |

Amount brought forward..... £543,696 2 2

ESTIMATE FOR STATIONS, &c.

| | | | | |
|--|------|---------|---------|-----|
| Principal station at Quebec, with workshop, machinery, &c..... | | £20,000 | 0 | 0 |
| Do do Montreal | | 20,000 | 0 | 0 |
| Station at Three-Rivers.... | | 10,000 | 0 | 0 |
| 17 Intermediate stations.... a | £300 | 5,100 | 0 | 0 |
| 4 Turntables..... a | 250 | 1,000 | 0 | 0 |
| Machinery of workshops... | | 3,000 | 0 | 0 |
| | | | £59,100 | 0 0 |

ROLLING STOCK.

| | | | | |
|--|--------|---------|----------|------|
| 8 Locomotives..... a | £2,200 | £17,600 | 0 | 0 |
| 8 Passengers Cars, 1st class a | 480 | 3,840 | 0 | 0 |
| 8 Do do 2nd class a | 300 | 2,400 | 0 | 0 |
| 100 Covered Platform Cars a | 170 | 17,000 | 0 | 0 |
| 80 Platform Cars..... a | 150 | 12,000 | 0 | 0 |
| 80 Ballast Waggon..... a | 75 | 6,000 | 0 | 0 |
| 50 Hand Cars..... a | 27 | 1,350 | 0 | 0 |
| | | | £60,190 | 0 0 |
| Sidings | | £9,990 | 0 | 0 |
| | | | 9,990 | 0 0 |
| Contingencies, &c.,..... 12½ per cent. | | | £672,976 | 2 2 |
| | | | 84,122 | 0 3 |
| Total amount..... | | | £757,098 | 2 5 |
| Being at the rate, per mile, of..... | | | £4,853 | 3 10 |

I have the honor to be,

Gentlemen,

Your most obedient humble servant,

JAMES N. GILDEA,

Chief-Engineer,

N. S. R. C.

APPENDIX A.

TABLE SHEWING COMPARATIVE ESTIMATE OF THE TWO PROPOSED

APPROACHES TO QUEBEC FROM CAP-ROUGE.

ESTIMATE OF NORTHERN ROUTE.

(Length 44,100 feet.)

| | | £ | s. | d. |
|---|--------|----------------|----------|----------|
| Excavations 123,500 cubic yards - - - | a 17 | 6,175 | 0 | 0 |
| Masonry in 3 bridges 4100 do - - - | a 257 | 5,125 | 0 | 0 |
| Do in culverts 300 do - - - | a 187 | 270 | 0 | 0 |
| Superstructure of bridge over St. Charles River at Quebec, 700 feet long - | a 1507 | 5,250 | 0 | 0 |
| Superstructure of bridge over River Larue, 20 feet long - - - | a 407 | 40 | 0 | 0 |
| Superstructure of bridge over St. Charles River 75 feet long - - - | a 1007 | 375 | 0 | 0 |
| | | <u>£17,235</u> | <u>0</u> | <u>0</u> |

ESTIMATE OF SOUTHERN ROUTE.

(Length 41,500 feet.)

| | | £ | s. | d. |
|--|-------|----------------|----------|----------|
| Excavations, 51,000 yards - - - - - | a 17 | 2,550 | 0 | 0 |
| Masonry in culverts, 300 yards - - - | a 187 | 270 | 0 | 0 |
| Breast work for the embankment at " Palais Harbour, " 6,000 superfi- cial feet - - - - - | a 47 | 1,200 | 0 | 0 |
| Total, - - - - - | | <u>£4,020</u> | <u>0</u> | <u>0</u> |
| Difference in favour of St. Joseph Street route - - - - - | | <u>£13,215</u> | <u>0</u> | <u>0</u> |

APPENDIX B.

TABLES OF CURVES AND GRADIENTS.

1st. Division.

(FROM QUEBEC TO POINTE-DU-LAC.)

| TABLE OF CURVES. | | TABLE OF GRADIENTS. | |
|-------------------|-----------------|-------------------------------|-----------------|
| Radius. | Length in feet. | Inclination in feet per mile. | Length in feet. |
| 17,190 | 4,100 | Under 51 | 12,000 |
| 11,460 | 27,100 | 48 | 33,500 |
| 11,300 | 7,800 | 43 | 5,000 |
| 9,300 | 2,100 | 44 | 6,700 |
| 8,100 | 9,400 | 40 | 10,500 |
| 7,640 | 4,400 | 36 | 4,700 |
| 5,730 | 22,400 | 33 | 4,000 |
| 3,600 | 1,800 | 28 | 3,500 |
| 2,865 | 4,500 | 26 | 4,000 |
| | | 25 | 2,200 |
| In curve | 83,600 | 23 | 12,300 |
| In straight line, | 355,920 | 22 | 10,000 |
| 82.9 Miles. | 439,520 | 20 | 8,000 |
| | | 19 | 26,500 |
| | | 18 | 6,000 |
| | | 15 | 6,800 |
| | | 14 | 6,000 |
| | | 12 | 10,000 |
| | | 7 | 16,500 |
| | | 5 | 56,100 |
| | | 4 | 39,000 |
| | | 3 | 39,900 |
| | | Level, | 116,320 |
| | | 82.9 Miles, | 439,520 |

TABLES OF CURVES AND GRADIENTS.

2nd. Division.

(FROM POINTE-DU-LAC TO MONTREAL.)

| TABLE OF CURVES. | | TABLE OF GRADIENTS. | |
|-------------------|-----------------|-------------------------------|-----------------|
| Radius. | Length in feet. | Inclination in feet per mile. | Length in feet. |
| 11,460 | 21,250 | Under 23 | 12,672 |
| 5,730 | 1,150 | 15 | 24,285 |
| 2,865 | 1,850 | 10 | 21,648 |
| 1,910 | 2,230 | 6 | 97,680 |
| | | 3 | 47,520 |
| | | 2 | 42,768 |
| In curve, | 26,480 | Level, | 138,864 |
| In straight line, | 358,960 | | |
| 73 Miles, | 385,440 | 73 Miles. | 385,440 |

APPENDIX C.

TABLE SHEWING THE COMPARATIVE COST OF THE PRINCIPAL BRIDGES
WITH A SINGLE AND DOUBLE TRACK.

| Name of Bridge. | Cost of single track. | Cost of double track. | Difference. |
|---|-----------------------|-----------------------|-------------|
| | £ | £ | £ |
| Jacques-Cartier, - - - - - | 2,895 | 4,434 | 1,539 |
| Portneuf, - - - - - | 5,854 | 8,254 | 2,400 |
| Ste. Anne, - - - - - | 5,000 | 8,680 | 3,680 |
| Batiscan, - - - - - | 4,568 | 8,254 | 3,686 |
| St. Maurice, (N ^o 1) - - - - | 6,951 | 11,712 | 4,761 |
| St. Maurice, (N ^o 2) - - - - | 8,546 | 14,458 | 5,912 |
| Bout-de-l'Isle, - - - - - | 20,120 | 30,000 | 9,880 |
| | 53,934 | 85,792 | 31,858 |

APPENDIX.

ASSISTANT ENGINEER'S REPORT ON THE TERREBONNE LINE.

You will perceive by the accompanying profile that the works are much heavier, the grades steeper and that more bridging is required by way of Terrebonne than by the shore line passing by Bout-de-l'Île; in bridging alone there is a saving of five hundred and fifty feet (550) in passing by Bout-de-l'Île, the crossing there being twelve hundred feet (1200), this with a bridge over Lavaltrie River of fifty (50) feet span is the only bridging required from Montreal to the Junction.

By way of Terrebonne to the Junction there are eighteen hundred and fifty (1850) feet of bridging required as follows: at Rivière-des-Praries nine hundred (900) feet, Rivière Jesus four hundred and fifty (450) feet, Rivière Mascouche one hundred and fifty (150) feet, L'Assomption River two hundred and fifty (250) feet, and Lavaltrie River fifty (50) feet.

| Table of Curves from Montreal to Pointe-du-Lac, by Shore line. | | Table of Curves from Montreal to Pointe-du-Lac, by Terrebonne line. | |
|--|------------------|---|------------------|
| Radius. | Length. | Radius. | Length. |
| 11,460 | 2,300 | 11,460 | 6,400 |
| 2,865 | 1,850 | 5,730 | 4,400 |
| 1,910 | 1,130 | 1,910 | 1,820 |
| 5,730 | 1,150 | 5,730 | 1,400 |
| 1,910 | 1,100 | 2,865 | 2,200 |
| 11,460 | 4,000 | 1,910 | 1,800 |
| 11,460 | 6,300 | 11,460 | 1,700 |
| 11,460 | 5,250 | 11,460 | 3,650 |
| 11,460 | 3,400 | 11,460 | 4,000 |
| | 5 miles 80 feet. | 11,460 | 6,300 |
| | | 11,460 | 5,250 |
| | | 11,460 | 3,400 |
| | | | 8 miles 80 feet. |

TABLE OF GRADES BY SHORE LINE.

| | | |
|------------------------|-----------|--------------|
| Under 23 feet per mile | - - - - - | 2.4 Miles. |
| 15 " " | - - - - - | 4.6 |
| 10 " " | - - - - - | 4.1 |
| 6 " " | - - - - - | 18.5 |
| 3 " " | - - - - - | 9.0 |
| 2 " " | - - - - - | 8.1 |
| Level, | - - - - - | 26.3 |
| | | <u>73.00</u> |

From the above tables, you will perceive that ninety-two and a half per cent of the division is straight, while nine tenths (9-10) of the balance is on curves of such radii as to offer no more resistance than a straight line, thirty-five per cent of the division is level, forty-nine per cent is nearly so being under six feet per mile, while the steepest gradient is twenty-three feet per mile and that only for a distance of two and four tenths miles.

I am,

Sir,

Your obedient servant,

P. MACQUISTEN,

Assistant Engineer.

James N. GILDEA, Esquire,
Chief-Engineer N. S. R. C.

Plan of the NORTH SHORE RAILWAY

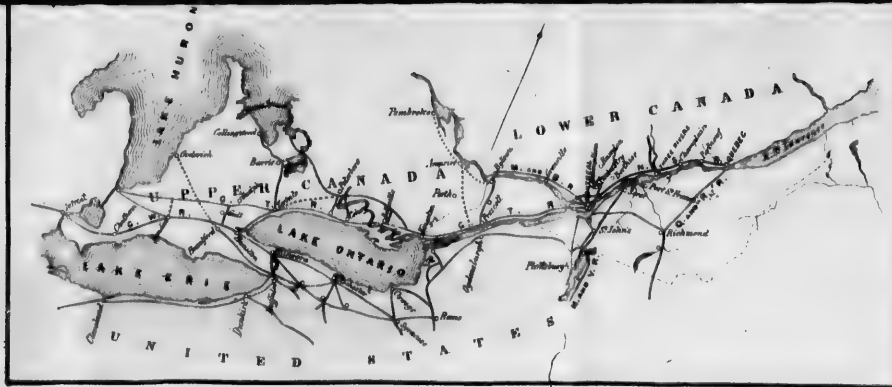
Shewing the connection between the Cities of

QUEBEC AND MONTREAL

THE GRAND TRUNK, MONTREAL AND BYTOWN RAILWAYS.

JAMES N. GILDEA M.I.C.E.
Engineer in Chief
November 1883.







RADNOR

3rd AUGst

MONTAUBAN

COLBERT

ROCMONT

CHAMPLAIN

17.896

COUNTY

ST^{te} ANNE

GRONDINES WEST

ALTON

GRONDINES EAST

PERTHUIS

BOURGLOUIS

COS

CAP DE LA
MADELAINE

BATISCAN

St^{te} Stanislas

St^{te} Vierge

St^{te} Genevieve

St^{te} Maurice

ST^{te} PIERRE LES BECQUETS

GENTILLY

19.657

St^{te} Gertrude

MADDINGTON

BLANDFORD

LA CHEVROTIERE

DESCHAMBAULT

NEUVILLE

River

PORT NEUF

PORT NEUF

PORT NEUF

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AUGMENTATION
(JULY)

LOTBINIÈRE COUNTY

19.657

St^{te} Flavie

AUG. OF SOMERSET

BONSECOURS

LES
PLAINES

STANTON
DETILL

SACROIX

QUEBEC AND RICHMOND

RIVER



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TO THE DIRECTORS
OF THE
NORTH SHORE RAILWAY.

GENERAL VIEWS.

(Translation.)

The Committee appointed to examine the Report of the Chief Engineer on the Survey of your Road, have the honor to submit the following remarks :—

What hopes soever may have been entertained by the Company in relation to the Survey, have been far surpassed by the result, for it establishes the undoubted superiority of your Road over all the existing lines of Railway in the Country.

This superiority consists :

1st. In a shorter distance between two given points.

2ndly. In a more perfect level.

From these two primordial, and so to speak, elementary facts, the following may be deduced as corollaries.

1st. Of two roads, the rate of travel being the same, the shorter one is the sooner travelled over.

2dly. Of two roads the shorter one is the cheaper to travel over.

3dly. The cheaper to construct.

4thly. The cheaper to keep up ;

and of two roads, the more horizontal one, is

5thly. The sooner travelled over.

6thly. The cheaper to construct.

7thly. The cheaper to keep up.

8thly. The safer one.

These facts are trivial from their being so very elementary, but they do not the less prove that all competition with your Road is impossible as regards the traffic which reaches Quebec through Montreal, or carried on between both those Cities.

Your object is not to get up among the several Railways a jealousy and an antipathy which would prove prejudicial to the interests of the Country, inasmuch as each of these Roads has its own utility and its own object, and thus all are deserving of public encouragement.

Understanding as we did, the ideas entertained by you, we confined ourselves to the task of establishing, that if these undertakings are good, not only as regards the general prosperity, but also as regards that of the capitalist whose attention they have attracted and whose confidence they have secured, *a fortiori* that attention ought to be directed, and that confidence accorded to the « North Shore Railway, » which has not yet been constructed because the population of Quebec and of the North Shore of the river were in a state of lethargy, while all around them was excitement.

LENGTH OF THE RAILWAY.

The length of the line of the North Shore Railway is a little under 156 miles.

The distance between Montreal and Quebec, by the river, is 180 miles.

Mr. Engineer Bailey, in his Report to the Directors of the Richmond Railway, says, that the distance from Quebec to Montreal by that road, is a *trifle greater* than by the River.

The North Shore Railway, therefore, is at least 24 miles shorter than the Richmond and the St. Lawrence routes combined. This makes a considerable difference on that dis-

tance, and one which will affect by so much the cost of construction, the cost of keeping in repair and the cost of transport ; a difference which constitutes in every way a valuable economy both for the traveller and as regards the transport of freight. Add to this, that in order to travel from Quebec to Montreal *via* Richmond, the River must be crossed twice, thereby entailing considerable loss of time, especially in winter, and exposing the traveller to many dangers, while, by the North Shore, one can travel from Quebec to the very heart of Montreal without once leaving the cars, through a pleasant and fertile country and villages without number, within sight of the noble St. Lawrence, whose waters, covered with thousands of sails, will present to the traveller, both in stormy and in calm weather, a spectacle at the same time grand and harmless ; for, your Engineers, in carrying out your instructions, have approached the River at every point where they could conveniently do so, in order that your Road may be useful to the population of both Shores of the Saint Lawrence.

The difficulties of crossing between Quebec and Point Levy are so great during the winter, from the almost continual obstruction of the river by ice, that travellers, only, will take the Richmond route during that season ; heavy goods and packages will have to await the opening of the navigation until your Road has been brought into operation. So great is this inconvenience of crossing, that although one half of the distance between Quebec and Montreal by the South Shore is now travelled by Railway, almost all travellers take the North road ; commerce, which, this year, is considerable, follows the same route. At this very moment, hundreds of vehicles are to be met with on that road, laden with copper, tallow, pork and other articles.

This incontestable fact is a proof at the same time of the necessity and of the advantages of the North Shore Railway.

Not only will your Road serve as a highway for the 300,000 inhabitants of the North Shore, and the transport of their

produce, but it will also be the market-road for nearly 70,000 inhabitants of the South Shore ; for, as the Richmond Railway passes through the interior of the lands, to a great distance, the population and commerce of that Shore cannot reach it. Communications will be established by means of small steamers, at the principal points on each side of the River during the summer, and the *ice-bridge* which nature never fails to construct every year, at the same period, at several points of the River above Portneuf, will render the communications still more easy during the winter.

The distance from Quebec to Montreal will be travelled in five or six hours at the utmost ; this will be a saving of six hours on the time occupied by our fastest steamers during the fine season, and a much greater one during the autumn, when fogs and storms retard and almost interrupt our commercial intercourse with Montreal and Upper Canada. In winter, a saving of 42 hours will be effected.

The object of Railways is to shorten time and space ; to bring objects closer to one another, and place them all in the same foreground ; to equalize the advantages of all the points of a Country ; to establish the same level for all markets, by creating but one market, so to speak, by the rapidity of communication. And, if the best road, the most certain of success, is naturally that one which best attains these objects, and best fulfils these conditions, there is none more certain of prosperity than the North Shore Railway.

GRADE.

We have spoken of the grade of your Road.

« Mr. Bailey says, that a large portion, equal to 60 per cent on the whole road, will be either level or of an inclination not exceeding 15 feet per mile. There are no grades to exceed 30 feet per mile, except the approach to the River St.

Lawrence, and for a short distance at Richmond, where a grade of 50 feet per mile is required.

« These are the most important features of your Railway, and they may be considered as exceedingly favorable. »

These features are indeed of a most favorable character ; but on the North Shore of the St. Lawrence, we have something still more favorable. In 31 parts of the Road out of 100, there is an absolute level ; in 39 it varies from 6 to 2 feet per mile, and in 10 parts from 15 to 16 feet.

COST OF CONSTRUCTION.

Now, as to the cost of construction.

The Richmond Railway, according to the contract entered into between that Company and Messrs. Jackson & Co., will cost £812,500 cy., and even more than £900,000, because Messrs. Jackson & Co., if we are not mistaken, are entitled to an increase equal to that in the price of iron at the time of the contract.

The St. Lawrence Railway which completes the communication between Quebec and Montreal, will cost, when ballasted, over £900,000. It has already cost that sum.

The Montreal bridge, according to Mr. Keefer's estimate, will cost £1,250,000 ; it will undoubtedly cost more.

It will therefore cost the Grand Trunk Company at least £3,000,000 to establish a communication between Quebec and Montreal, and yet this communication which, during the summer, cannot take place without transshipment, will be interrupted during the winter.

To cover the interest on such a capital at 6 per cent, in addition to the cost of keeping the road in operation, which is on the average about 40 per cent on the receipts, it will require an annual net receipt of £180,000, or a gross one of £300,000.

Knowing, as we do, the history of Railways, we believe,

indeed, that this enormous amount of receipts can be obtained.

Let us now examine what will be the cost of the North Shore Railway if the resources of Canada, which are better known at the present day, are capable of inspiring the capitalist with confidence, and whether, in order to construct the Road, *you are not obliged* to have recourse to ruinous expedients.

Your Engineer estimates the cost of the Road at £543,696 2s 2d ; of the stations and starting places at £59,100 ; of the locomotives, cars, &c., at £70,180 ; and of contingencies at £84,122 0s 3d ; total £757,098 2s 5d, and adds : « For all these works the estimate provides liberally. In « establishing the prices on which it is founded, I have been « guided by what has been actually paid for similar works on « other lines, taking little account of the singular advantages « which the average location of this line offers of reducing « its cost below the average. »

This will make, then, for the construction of the road and bringing it into full operation, £4,854 11s 0½d per mile.

The interest on the whole cost, at 6 per cent, will amount to £45,438 annually, and a gross receipt of £75,730.

Thus, of two roads placed between the same two points, one, in order to give 6 per cent, will require a gross annual receipt of £300,000, and the other a gross receipt of £75,730, *only*.

If then, the first is a paying road, and we do not doubt that it is, the second would be infinitely more so ; and where the united roads of Richmond and the St. Lawrence will charge, say 6d. for the transport of an article, the North Shore Railway will carry the very same article for a trifle over 1½d.

We shall perhaps be told that the cost of the Montreal bridge must be apportioned over the cost of the whole of the Grand Trunk Railway, and, therefore, that our calculation is exaggerated. To this we answer, that in making this calcul-

ation, we have left out the cost of constructing and keeping in operation the steamers which must complete the communication by the south, between Montreal and Quebec. And again, the cost of keeping in operation, which is on the average 40 per cent on the receipts, is more or less great according as the road is of greater or less length, and its grade more or less heavy. Thus, while a locomotive on the Reading road has drawn in one train alone, one hundred and fifty iron coal-cars, of the weight of 1268 tons, another, on the Baltimore road, was only capable of drawing one car containing a weight of but twelve and a half tons.

Moreover, the cost of keeping up a road is proportioned to its length. Now, the Richmond and St. Lawrence Roads are longer than the North Shore Railway and their grade heavier.

With all these facts in view, is it not evident that the western trade, that of the valley of the St. Lawrence, of the valley of the Ottawa and of Montreal, will pass by the North Shore of the river and stop at the terminus of the North Shore Railway at the deep waters of the St. Lawrence, there to be received by the 1500 vessels which annually resort to the port of Quebec.

DOCKS.

Your Company intend applying to Parliament for power to construct docks in the river St. Charles; wet docks in which all the vessels resorting to the port of Quebec will be able to land their cargoes, perfectly sheltered from all weathers; and dry docks for the construction and repairing of vessels.

The valley of the Cap Rouge and that of the St. Charles, are destined shortly to become but one, by the work of art, and to form an immense chain of docks which will surround the city of Quebec; thus enabling the River St. Lawrence to flow through a bed which was probably once covered with its waters.

The docks and the store-houses connected with them will prove a great source of prosperity to Quebec, and be productive of great benefit to the Company, at the same time that the loading and unloading of vessels will thereby become more safe, more expeditious and less costly.

COMMERCE.

Commerce will follow the North route, because it is the shortest, the swiftest, and the cheapest ; because it will do away with the necessity of transshipment, which is always attended with inconveniences, the least of which is the loss of time ; it will follow that route because it will find at your terminus, at the port of Quebec, a more easy outlet than any where else.

The North Shore Railway is the shortest route for the traveller from New York to Quebec ; it will also be followed during the winter by travellers to Boston. It is also the most direct to Upper Canada and to the mouth of the Ottawa.

The termini of your Road will be in the two largest and most commercial cities of Canada and of the whole of British North America.

QUEBEC.

Quebec, so rich in historical recollections, so strongly, so picturesquely situated at the summit of its promontory, overlooking as it were one of the finest and most majestic scenes of nature, having at its feet one of the largest Rivers in the world, of which it forms the principal port for vessels from beyond the seas, and which places it in communication with the vast regions of the West by an inland navigation, half the work of nature and half that of art, and the most magnificent in the world,—offers incalculable advantages to commerce, at the same time that its natural beauty and its fortifications attract an immense number of travellers.

The City, including the Town and that part of the Suburbs situate beyond the City limits, contains a population of more than 50,000 souls. In 1831, it only contained 27,000. The real property of the City alone, is estimated by Mr. Serrell, the author of the plan of the Quebec Suspension Bridge, at £5,992,080. This figure includes the value of the assessed property and of the unassessed public property, which, in Quebec, is probably greater than any where else. Mr. Serrell, supposing, with some reason indeed, that assessments are not more strictly made at Quebec than in the greater portion of the Cities in the United States, has established the same proportion as has been established to find the real value of landed property there: as 25 (assessed property) is to 40 (real value of property). Thus it is that he has obtained the amount of £5,992,080.

The value of personal property is much higher, so that Quebec contains property to the value of at least £12,000,000 currency.

The following figures will give an idea of the prosperity and commerce of Quebec.

ARRIVALS AT THE PORT OF QUEBEC.

| <i>Years.</i> | <i>Vessels.</i> | <i>Tonnage.</i> |
|---------------|-----------------|-----------------|
| 1845 | 1699 | 628,389 |
| 1846 | 1699 | 623,791 |
| 1847 | 1444 | 542,505 |
| 1848 | 1350 | 494,247 |
| 1849 | 1328 | 502,513 |
| 1850 | 1341 | 485,905 |
| 1851 | 1469 | 573,397 |
| 1852 | 1234 | 506,123 |
| 1853 | 1351 | 570,738 |

The number of vessels which sail from the port every year, is greater than that of the vessels which arrive here; thus, 1406 vessels, measuring together 599,567 tons, left the port in 1853. The cause of this difference arises from the number of vessels built yearly in our ship-yards.

VESSELS TRADING BETWEEN QUEBEC AND THE BRITISH NORTH AMERICAN
PROVINCES IN 1853.

| <i>Arrived.</i> | | <i>Sailed.</i> | |
|-----------------|----------|-----------------|----------|
| No. of Vessels. | Tonnage. | No. of Vessels. | Tonnage. |
| 228 | 23,264. | 218 | 14,069 |

The trade between Quebec and the Provinces of the Gulf increased considerably in 1853 ; that with Newfoundland was more than doubled from 1852 to 1853. In 1852, 24 vessels, measuring 1944 tons, were sent to Newfoundland; in 1853, the number of vessels sent to the same place was 34, measuring 3,575 tons.

All provisions intended for those Provinces will probably ere long be sent from the port of Quebec.

To the number we have just given, must be added an immense number of small coasting vessels which bring to Quebec planks, boards, laths, staves, shingles, firewood, stone, pork, butter, potatoes, hay, oats and other grain, &c., and cattle of every description, and in return take back every article of commerce not produced in the Agricultural Districts.

The imports to Quebec in 1853, amounted to £1,190,736 15s. 8d. and its exports to £1,264,432 12s. 8d. The amount of imports is, however much more considerable than it appears, inasmuch as the Quebec merchants have entered a part of their imports at the Montreal Custom House.

Quebec is the mart for the lumber from the Ottawa, the St. Maurice and the other tributaries of the St. Lawrence. In 1853, the exports in lumber from Quebec, were 22,129,120 cubic feet of square timber; 1571 thousand (of 1200) 1st quality staves, 1854 thousand puncheon staves, 3,078,475 planks of 1st quality and 6569 cords of laths.

SHIP BUILDING.

« Few Ports, » says Lord Elgin, in a despatch addressed by him in 1852, to the Colonial Secretary, « offer such facil-

ities for ship-building as Quebec, all materials employed in the construction of vessels being cheap ; labor, during the winter months at least, abundant, and procurable at moderate rates, and outward freights at all times secured. »

The following statement will shew the extent of that important branch of industry.

| Years. | No. of Vessels built. | Tonnage. |
|--------|-----------------------|----------|
| 1843 | 48 | 13,785 |
| 1844 | 48 | 15,045 |
| 1845 | 53 | 26,147 |
| 1846 | 40 | 19,764 |
| 1847 | 70 | 37,176 |
| 1848 | 41 | 19,909 |
| 1849 | 37 | 24,426 |
| 1850 | 45 | 30,387 |
| 1851 | 64 | 40,567 |
| 1852 | 42 | 27,754 |
| 1853 | 76 | 51,637 |

The average tonnage of square-rigged vessels was 852 in 1849, 912 in 1850, 972 in 1851, 964 in 1852, and 1132 in 1853.

The annual average value of vessels built in Quebec, is about £500,000.

A greater portion of the timber used in the building of these ships is derived from the forests situate at some distance from Quebec, and on the line of your Railway. The following quantities of timber are employed in the construction of a vessel of 1000 tons, and are brought at great cost during the winter by the inhabitants of the neighbouring localities:

| | | | | | | | |
|--------------------|---|----|----|---|-------|----|---|
| 140 ribs, | a | £3 | 0 | 0 | £420 | 0 | 0 |
| 140 first knees, | a | 1 | 5 | 0 | 175 | 0 | 0 |
| 140 second knees, | a | 1 | 0 | 0 | 140 | 0 | 0 |
| 140 third knees, | a | 0 | 17 | 6 | 122 | 10 | 0 |
| 140 futtocks, | a | 0 | 12 | 6 | 87 | 10 | 0 |
| 50 other futtocks, | a | 2 | 0 | 0 | 100 | 0 | 0 |
| | | | | | <hr/> | | |
| | | | | | £1045 | 0 | 0 |

50,000 pieces of timber, equal in value to the quantities first enumerated, are also used in the construction of a vessel of 1,000 tons, and might be brought by the Railway at an immense reduction of the cost of transport.

To give you an idea of that cost, and of the impetus which your Railway will give to ship-building, it will be sufficient to tell you that an agriculturist in a neighbouring parish lately said to a ship-builder: « My piece of timber is worth £10, when it reaches here, and even at that price, I gain nothing; but I will give it to you for £2 10s. if you will fetch it from the road-side on the borders of the forest. »

FUTURE PROSPERITY OF QUEBEC.

No one can calculate what Quebec is destined to become. It might at this present moment be as large as New York, if the value of the St. Lawrence and the resources of Canada had been better appreciated by commerce and by capitalists, and if the Legislature of the mother country had not kept our ports so long closed to foreign vessels.

Quebec is nearer than New York to Liverpool by 390 miles, and the St. Lawrence leads from Europe to the West, in a direct line, by means of an inland navigation of 800 leagues. The West already contains ten millions of inhabitants, and is capable of containing 500 millions in its fertile and boundless plains.

Compare the distances, and, especially, the magnificent navigation, to that wholly artificial navigation by means of which New York receives the products of the West and sends it in return those of Europe, and judge then whether it is possible to entertain any doubts respecting the future prosperity of Quebec.

If Quebec has not yet been all that it could be, it is because the prices of freight have been lower at New York, sufficiently so to compensate for the disadvantages of the Erie route;

and they have been higher at Quebec because the rates of assurance were higher there, and there is no return freight. The rates of assurance were higher there because the dangers of the St. Lawrence had been exaggerated; and there has been no return freight because they were not aware in Europe of the advantages of this great route of navigation over all others, to penetrate to the very centre of North America and of the vast territory where the old World pours forth in immense numbers the surplus of its population.

Quebec might export as much flour and wheat as all the Atlantic ports of the Union together. To become convinced of this, it is only necessary to cast a glance at the immense extent of the valley of the St. Lawrence, which leads, through navigable and deep waters, to the very heart of the immense fertile plains of the West, and to the very sources of the Mississippi.

Let us examine whether the dangers of the navigation of the St. Lawrence have been exaggerated. Out of 16,685 sea-going vessels measuring together 6,242,326 tons, which resorted to the port of Quebec from 1840 to 1852, inclusively, only 259 were lost, and the greater part of these shipwrecks invariably took place in the month of November, the last and most stormy month of the navigation season. Besides, what description of ships, ship-masters and crews have we had up to the last few years. A ship-wreck has often been a matter of speculation; the captains were frequently drunkards and perfectly incompetent; the crews just as bad. Good ships easily found cargoes, while bad ones lay idle until the season at which tempests, snow storms and fogs abound, and were lost on our coasts, just as they would have been every where else.

A great change for the better is now to be perceived; the vessels are superior, the ship-masters generally better taught, more careful and respectable; ship-wrecks have therefore diminished in proportion.

As a proof that ship-wrecks are generally owing to the bad quality of the vessels, to the want of care, the ignorance and inexperience of the captains and of the crews, we may state that out of 1077 vessels, measuring together 673,472 tons, belonging to Messrs. Pollock, Gilmour & Co., which sailed from the Port of Quebec from 1839 to 1853 inclusively, *two* only were lost ! This extensive house takes particular care that its vessels leave the River before the 15th of November and the stormy and dangerous season ; it does not even insure them.

During the year 1850 there were only two ship-wrecks in the River, and they occurred during a favourable season, so that they are to be attributed to the want of care and foresight on the part of those entrusted with the management of the vessels. In 1851, 8 wrecks occurred, and in 1852, 11.

It is true that the number of wrecks was considerable in the month of November 1853 ; but these were caused by one of those storms which are fraught with ruin and destruction wherever they take place ; but they were caused by the very same storms by which so many vessels were lost in all the European and American seas. Almost all the vessels lost in the River St. Lawrence, during November last, were stove in by the ice and only driven ashore by their crews to prevent their going to the bottom.

The number of vessels wrecked during 1853 within the British dominions, exceeds 2000, and in the United-States it exceeds 1100.

One storm alone casts as many as five hundred vessels at a time upon the coasts of Great Britain, and this is not considered as a drawback to commercial enterprize ; these coasts are not even thought to be dangerous. But if in a similar storm, vessels happen to get lost on the shores of the St. Lawrence, the commercial world takes fright and the whole of the trade rushes off to the Atlantic coasts of the United States, where the danger is far greater, and the ship-

wrecks far more numerous ; this panic is easily shewn by the amounts of assurance premiums. And yet is it rational and can it last? No ; for in order to give confidence to commerce and draw it to the St. Lawrence, the Government and the Legislature of Canada are making efforts which have already proved partially successful, and are an earnest of the future prosperity of this Country and especially of its seaport, Quebec.

A semi-monthly communication already exists between Quebec and Liverpool ; this communication must soon be weekly, and wealthy companies are now being organised for the construction of powerful steamers to take the same route as those of McLarty & Co.

Lord Elgin, in a despatch which we have already cited, thus expresses himself :

« Maps on Mercator's projection, and the fact that indifferent ships, recklessly navigated, have not unfrequently been employed in the timber trade, have contributed to produce an exaggerated popular impression with respect to the length and the perils of the Ocean route of the St. Lawrence. It is not sufficiently known, as regards the former point, that the sailing distance from Liverpool to Quebec is, if the Straits of Belleisle be taken, some 400 miles, and, if the southern course be preferred, from 100 to 200 miles shorter than that from Liverpool to New-York ; and that, as respects the latter, the Ocean Route of the St. Lawrence is by no means peculiarly hazardous to well-framed ships, navigated by officers who are thoroughly acquainted with it, while it is especially adapted to screw or paddle steam ships from the circumstance that a considerable portion of the passage from one Continent to the other is in smooth water. »

A glance at Captain Bayfield's admirable Naval Charts, will show that there are good harbours in the Straits of Belle-Isle, and good anchorage and soundings on the South Shore of the St. Lawrence, where the depth of the water gradually and uniformly decreases until it reaches the shore. So that with

good anchors and the casting lead, the first and last resources of the prudent mariner, the navigation of the River is not attended with any very great danger.

It is intended to increase the number of light-houses in the Straits of Belle-Isle and on all the points of the River considered as being at all dangerous, in order that the mariner may be constantly lighted during the night, from the moment he enters the Gulf until he reaches the port of Quebec.

Powerful tow-boats, provided through the liberality of the Country, will soon be despatched to the lower ports of the River, to bring up vessels kept back by calm weather or foul winds, thus considerably reducing the distance.

THE FISHERIES.

There is a source of wealth, an immense mine which has not yet been opened out by Canada. We allude to the fisheries of the Gulf and of the River St. Lawrence, where the Americans catch, annually, 1,500,000 quintals of fish; the French, 1,000,000; and the English, 1,000,000; the aggregate value being equal to £2,187,500, to which must be added £125,000 for the Seal-fishery, and £100,000 for fish exported annually from the port of Gaspé.

The Americans employ, annually, in this fishery, 37,000 men, 2,000 schooners measuring from 30 to 180 tons; and 10,000 open boats; the French 25,000 men and 500 large vessels; and the English 25,000 men and 520 sailing vessels.

« Labrador has a sea coast of 1,000 miles; in the fishing season a population of over 30,000, who import all the provisions they consume and export to the amount of £800,000 to £1,000,000 annually. The Americans and Nova Scotians, fully alive to the profitable trade and rich fisheries of Labrador have, by every means in their power, endeavoured to foster and encourage it. »

According to the official document from which we have just given an extract, 326 vessels, measuring collectively 30,196 tons and manned by 11,629 men, left the ports of Newfoundland for the Seal fishery, in the spring of 1851.

Mr. George Hayward, the comptroller of Customs at Newfoundland, thus concludes a letter addressed by him in 1852 to a Committee of the Legislative Assembly of Canada.

« In conclusion, I shall observe, that Newfoundland contains a population consisting of 95,000 souls, who are depending principally, if not altogether, on other countries for food and supplies, and as the prosecution of Agricultural pursuits has not been found to answer, except as an auxiliary to our fisheries, I humbly conceive that a vast extended trade may be beneficially opened up with Canada in the supply by her of all description of provisions, more particularly in the exchange for the staple articles of this Colony, such as Codfish, Cod and Seal Oils, Seal Skins, Herrings, Salmon, Mackarel and Caplin, if such a commerce were established upon a fair basis of Legislative Reciprocity. »

The 2000 American Schooners employed in the fisheries of the Gulf and in the River St. Lawrence, sail with their cargoes for the ports of Boston and New-York where they receive a bounty, and thence send their fish to all parts of the Union, and to the very extremities of the Western territories.

Besides the fact that Canada can and will before long carry on a large traffic with other nations, in the inexhaustible and boundless fisheries of her Rivers, the fish caught by the Americans and intended for the population of the interior of the Northern States and the ten millions of inhabitants of the Western States, will eventually take the St. Lawrence route, as being the shortest and most direct !

Nature and her laws, with the assistance of man, always succeed in obtaining the upper hand over means which are purely artificial, however gigantic they may be if nature is

against them; and Quebec will recover its position, if by means of Railways it remains open to the commercial world during twelve months of the year, and if, by means of the Railways which traverse America in every direction she maintains distances in the proportions which nature has given them, for, to the *iron-horse* space is naught.

MONTREAL.

The other terminus of the North Shore Railway is in the very centre of the City of Montreal where four roads already meet, by means of which you will be brought into connection with every point of the American Continent; two other Railways which are now being constructed, will also terminate there. The population of Montreal is over 60,000; the value of its real property over £6,000,000; its imports in 1853 amounted to £3,384,716 14s. 9d. and its exports to £745,761 10s. It is the commercial mart of Upper Canada and the centre of a fertile district, containing more than 400,000 inhabitants. This City carries on a considerable trade with Quebec, and which would increase beyond all conception, if the communication between the two Cities were more regular and if it were not in fact interrupted during six months of the year.

THE RIVER TRADE.

The gross receipts of the first class steamers running between Quebec and Montreal amounted in 1853 to £36,000; the loss of two steamers which sunk, is of course not to be taken into calculation. The competition, which has been in existence hardly two years between the first class steamers on the Hudson River and the Hudson Railway, has established the undoubted superiority of the latter by causing the former entirely to disappear. The gross receipts of the Hudson Railway which, however, has only so to speak, just been put

into operation, amounted for the months of June, July and August 1853, to £86,795, and it was calculated that the receipts for the twelve months of the same year would amount to £350,000.

It may then be said at least, that the net receipts of your Road which it will merely draw off in freight and passengers from the first class steamers, will amount to £20,000. And, as this does not shew one fourth of the transit trade carried on between Quebec and Montreal by means of a considerable number of other steamers, barges, schooners and bateaux, in estimating at £50,000 the entire and net receipts which your Railway will take away from the River, we place it at the very lowest figure.

The steamers which run only during six and a half months of the year can only be useful to the population in the neighbourhood of their stopping places; and the greater part of the population on the two shores scarcely travel during the summer, and much less during the winter, because, during that season, the snow renders the communications difficult, and commercial life among them seems to become perfectly torpid there during six months of the year.

IMMIGRATION.

A considerable portion of the European emigration comes by the St. Lawrence, either on its way to Upper Canada or to the valley of the Mississippi. The following is a table of the number of immigrants to the port of Quebec for the last seven years.

| <i>Years.</i> | <i>No. of immigrants.</i> |
|---------------|---------------------------|
| 1848 | 27,939 |
| 1849 | 38,494 |
| 1850 | 32,292 |
| 1851 | 41,076 |
| 1852 | 39,176 |
| 1853 | 36,699 |

«The admirable and capacious system of inland navigation extending from Quebec for upwards of 1500 miles into the interior of the Continent,» says Lord Elgin, «and the certainty of obtaining freights, are calculated to cause a preference to be given to this over rival routes for the transport of heavy goods, such as Salt and Iron, and of Immigrants destined for the vast regions bordering on the great Lakes. These advantages are not yet generally known, nor have they been appreciated as highly as they deserve.»

Persons came to Quebec this year who have been employed during their whole life time in directing Emigrants from England to America, and who, astonished at the beauties of Canada, its immense resources and the superiority of the St. Lawrence route over that of New York, have expressed their intention hereafter to direct, as much as may lie in their power, the tide of Emigration towards Quebec. We may then rely upon a much greater number of immigrants than we have yet had, and the receipts of your Road will increase in proportion.

LOCAL TRADE.

Every where Railways have induced that part of the population to travel which had never been in the habit of travelling and have increased the freight and number of travellers beyond all conception. Thus, the number of travellers on the English Railways, which in 1840 was only 13,000,000, was 73,000,000 in 1853. The population of England, according to the census of 1850, was a little over 21,000,000. That population therefore has moved about more than three times and a half in the space of one year. The number of travellers on the Railways in the State of New York alone was more than 7,000,000 in 1853, and thus the population of that State has moved about more than twice in the same year. The number of travellers between Glasgow and Greenock, which was formerly 110,000 per annum, now exceeds 2,000,000; this is

equal to five times the population of that district. In 1814 the number of travellers between Glasgow and Paisley was 10,000 annually ; in 1842 it exceeded 900,000. During that period the population had only doubled. Traffic had increased nine times, and for one voyage which an inhabitant of Glasgow or Paisley made in 1814, he made forty-five in 1842.

All statistics shew that a Railway of ordinary length derives from each of the inhabitants of the country through which it runs, a net revenue of ten to fifteen shillings. The net profits of the Massachusetts Railway exceed sixteen shillings and three pence for each individual of the population of that State. The Erie and New York Railroad runs through a country 445 miles in length, containing a population of 352,000 souls. The net profits, per individual, on this road, is twelve shillings and six pence. The population consists of 28 souls per square mile. Now, the population of the North Shore between Quebec and Montreal is much more thickly settled. This population does not on an average extend more than fifteen miles in the interior ; but if we take fifteen miles as the average, we find 128 inhabitants to the square mile, and a population of 300,000 souls on a distance of 156 miles. We may then safely value at ten shillings, per individual, the net profit which the 300,000 inhabitants of the North Shore and the 70,000 inhabitants of the South Shore will give to your Road.

THE OTTAWA.

Thus far we have said nothing of a branch of Trade which can neither be monopolized by steamers or by sailing vessels, and which floats about on the St. Lawrence and its tributaries at the mercy of currents and foul weather ; we allude to the timber trade.

The value of timber cut on the Ottawa and its tributaries, immense rafts of which reach Quebec after waiting to be floated by the high waters and after having come down the falls and

crossed the lakes, (the most dangerous of all waters for timber), may be estimated at £1,000,000.

The loss incurred on timber before it reaches its destination, which it is sometimes six months in doing, and even twelve months when the waters are not sufficiently high to float it, and never less than three months, is estimated at ten per cent, which on £1,000,000 amounts to £100,000.

The cost of transport of timber from the place where it is cut, to Quebec, is 14d per foot and 1 from Bytown to Quebec. If we estimate at 20,000,000 the number of feet of timber cut on the Ottawa, this will give £125,000 for transport.

If we calculate, moreover, the interest on £1,000,000 during three months transport, we have a further sum of £15,000.

But, as timber cut during the winter can only float in the Rivers when the waters are at their highest, it only reaches Quebec very late in the spring, and merchants are consequently obliged in the fall to accumulate several million feet of timber in that port, in order to be ready for the spring fleet. The quantity wintered at Quebec in 1853 was 12,000,000 feet, and that now wintering here exceeds 9,000,000. If we take 10,000,000 feet as the average, and value that quantity at £500,000, we find that the merchants will have to pay six months interest on those £500,000, that is £15,000.

By the Bytown and North Shore Railways, timber would reach Quebec in three or four days at the very utmost, and be in time for the Spring fleet; so that lumber merchants would not be deprived of their capital, as at present, during nine months of the year.

Now all these sums together will give us £255,000, from which we must deduct £62,500 for the cost of transport of the timber as far as Bytown, and £7,500 for interest on the cost of the timber during its transport to Bytown, or £185,500 which must be divided between the Bytown Railway and yours, in proportion to the respective lengths of the two roads,

thus giving to the Bytown Railway £74,000 and to the North Shore Railway £111,000, or £66,000 net profit, after having deducted forty per cent for the cost of keeping in operation.

On the Reading Railroad, (United States,) the gross receipts of which amounted in 1852 to 620,156 2s 6d, coal was brought a distance of 94 miles for little more than 1s 9½d, per ton, including the cost of bringing back the empty cars. This sum of 1s 9½d is equivalent to 2s 11½d for a distance of 156 miles, and yet the cost of keeping in operation does not by any means increase in proportion to the increase in the length of the road. Now £111,000 makes more than 4s 5d per ton, There can be no doubt then that all square timber will be sent from the Ottawa to Quebec by your road.

The Ottawa trade is properly speaking that of Quebec, its natural trade in fact, of which it cannot be deprived unless its inhabitants shew the most unpardonable apathy and allow it to take the Portland route ; this trade is also one which, by means of the great improvements now being effected all over the country, will increase immensely.

To give a complete idea of the Ottawa and of its vast resources, let us quote the imposing words of the Governor General, a disinterested witness, whose opinion will leave no doubt or suspicion in the public mind,

« This important region, » says Lord Elgin to the Duke of New-Castle, in his despatch of the 5th November 1853, « takes the name by which it is designated in popular parlance, from the mighty stream which flows through it, and which, though it be but a tributary of the St. Lawrence is one of the largest of the rivers that run uninterruptedly from the source to the discharge within the dominions of the Queen. It drains an area of about 80,000 square miles, and receives at various points in its course the waters of streams, some of which equal in magnitude the chief rivers of Great Britain. These streams open up to the enterprise of the lumbermen the almost inexhaustible pine forests with

which the region is clothed, and afford the means of transporting their produce to market. In improving these natural advantages considerable sums are expended by private individuals. £50,000 currency was voted by Parliament last session for the purpose of removing certain obstacles to the navigation of the Upper Ottawa, by the construction of a canal at a point which is now obstructed by rapids.....

« The country of the Ottawa, besides its wealth in timber and water power, and considerable tracts of fertile soil, is believed to be rich in minerals, which may probably at some future period be turned to account. It is also worthy of remark, that the route of the Ottawa, the Mattawa, Lake Nipissing, and French River, is that by which Europeans first penetrated the West. Along this route Champlain, in 1615, proceeded as far as Lake Nipissing, and thence to the vast and tranquil inland sea to which he gave the appropriate designation of La Mer Douce. The Recollet father, Le Carron, bore the Gospel to the Huron tribes along the same track, and was followed soon after by those Jesuit missionaries whose endurance and suffering constitute the truly heroic portion of American Annals. This route has been for some time past in a great measure abandoned for that of the Saint Lawrence and the Lakes. The distance, however, from Montreal to the Georgian Bay, immediately facing the entrance to Lake Michigan, is, via the Ottawa about 400 miles, against upwards of 1000 via the St. Lawrence. From this point to the Sault St. Marie, the highest of the three narrows (Sault St-Marie, Detroit, and Niagara) at which the regions lying either side of four great lakes, Superior, Huron, Erie. and Ontario, approach each other, is a distance of about 150 miles. It is highly probable therefore, that before many years have elapsed, this route will be again looked to as furnishing favourable line for railway, if not water communication with the fertile regions of the north-west. »

The Ottawa comprises twenty first-class tributaries, the

course of some of which is 300 miles in length and a great number of smaller tributaries. The length of the Ottawa is about 600 miles.

The valley of this River abounds in ores, such as iron, plumbago, lead and copper.

The St. Lawrence, notwithstanding its immense comparative length, has long been preferred to the Ottawa as a route of travel from the West, in consequence of the depth of its waters and its superior navigation. But Railways alter the aspect of the country and do away with every thing, excepting, however, geometrical measurement, and even this is not of any value for trade unless the means of communication are everywhere the same. It is only then, as Lord Elgin says, by means of a Railway that the Ottawa route which is shorter by 600 miles than that of the St. Lawrence, will take that commercial position assigned to it by the Jesuit Missionnaires. Now, a Railway is in progress of construction between Montreal and Bytown: another between Amprior and Pembroke and the two united Railway Companies of Bytown and the North Shore have formed the project of constructing this iron road of the Ottawa to the very banks of the « *Fresh Water Sea*, » (Lake Huron), and even to the « highest of the narrows, » (Sault Ste. Marie).

THE SAINT MAURICE..

After the Ottawa, as a source of revenue for your Road, comes the St. Maurice, another tributary of the St. Lawrence. The St. Maurice has hardly been explored and its furthest forests have already fallen under the axe of the woodman. Up to a very short time since, none but the missionary and the *voyageur*, ascended its course, which is more than three hundred miles in length, in a frail canoe; the former to bring tidings of the Gospel to the Indian tribes on the very banks of Hudson's Bay; the latter to give chase to the

animals of the forest and despoil them of their soft and rich furs.

This great river which possesses innumerable tributaries, some of which are 150 to 200 miles in length, receives the waters of a tract of country containing at least 80,000 miles in superficies.

Great companies, carrying on the lumber trade between Canada and the United States, have already constructed immense sawing establishments at Three Rivers, at the very mouth of the St. Maurice; these companies intend to construct a Railway along the banks of the St. Maurice, terminating at the *Piles*, a distance of thirty-three miles from Three Rivers. At the *Piles* a splendid navigation begins; its extent is 75 miles, and it is deep enough for Steamers, which may ascend the St. Maurice as far as the *Fourches*. Government has already expended considerable sums in improving the course of the river and facilitating the descent of timber.

The quantity of provisions of every description which are now being sent to the St. Maurice to serve as food for the thousands of persons employed in the timber trade, is immense; and all our extensive Quebec lumber merchants are at work. The Ottawa lumberer, in ascending one of the tributaries of that river (the Gatineau), cuts his timber at the very place which is washed by the waters of the tributaries of the St. Maurice. The St. Maurice timber is therefore nearer the market than that of the Ottawa by more than 450 miles, and the trade on the first river will soon have attained the same proportions as that on the latter.

The water powers on the St. Maurice and its tributaries are innumerable, and its iron mines have been worked more than 150 years. Every one is acquainted with the celebrated forges of the St. Maurice, situate at a distance of nine miles from Three Rivers; any one undertaking at the present moment to work the iron of the St. Maurice on a large scale, would make an immense fortune. Mr. Hall, of the Falls of

Montmorency, one of our lumber merchants who does the largest business in the forests of the New Ottawa, (the St. Maurice) has established foundries in connection with Messrs. Turcot and Larue of Three Rivers, on the South Shore of that River, at a short distance in the interior.

The town of Three Rivers which had so long been inactive, has taken an extraordinary start since this new branch of commerce has been got up, and is evidently destined to become a great centre of population and wealth. The Banks, which are ever indicative of prosperity, have just established branches there; there are not less than three at present. The price of property has almost doubled in two years.

Everything, then, promises for the St. Maurice the greatest prosperity. Now, that River meets the North Shore Railway at right angles, and no competition can deprive the latter of the commerce of the St. Maurice.

Your Road has this particular advantage, which is an immense one, that at no one of its points can competition affect it either at present or hereafter.

Do we then exaggerate in valuing at £15,000 the annual net revenue which the North Shore Railway will receive from the St. Maurice trade?

LANDED PROPERTY AND PRODUCTS.

We have been enabled to obtain from the incomplete census of 1850 some information which will give an idea, at least, of the resources of that part of the country which your road must cross or for which it must serve as a market road.

The superficial extent of that part of the country is 57,635 square miles; its assessed value in real property (with the exception of Montreal and Quebec) £8,529,335, and, if we establish the same proportion (25 to 40) that has been established for Quebec, and we can do so with much more reason

for the country than for the City, because the inhabitants of the agricultural districts conceal, from the census-takers, the value of their real property, from the fear they entertain of being taxed, its real value will be £13,646,936.

Add to this amount the value of real property in the Cities of Quebec and Montreal, and you will have in round numbers £25,550,000.

| | 1850. | | Value. | |
|-------------------------------|-----------|----------|------------|-------|
| Potatoes, | 1,325,888 | Bushels, | £165,736 | |
| Wheat, | 892,529 | " | 334,698 | 1 10½ |
| Barley, | 89,620 | " | 17,924 | |
| Peas, | 403,143 | " | 201,572 | 10 |
| Rye, | 89,779 | " | 17,955 | 16 |
| Buck Wheat,, | 247,921 | " | 49,584 | 4 |
| Indian Corn, | 87,138 | " | 32,676 | 15 |
| Oats, | 3,475,847 | " | 521,327 | 1 |
| Turnips, | 83,758 | " | 5,234 | 17 6 |
| Carrots, | 23,136 | " | 1,735 | 4 |
| Mangel Wurzel, | 48,837 | " | 3,662 | 15 6 |
| Beans, | 5,238 | " | 1,964 | 5 |
| Timothy & Grass Seeds, | 3,568 | " | 2,676 | |
| <hr/> | | | | |
| Total, | 6,796,402 | Bushels, | | |
| Hay, | 207,692 | Tons, | 872,302 | 13 |
| Beef, (in barrels) | 10,550 | Barrels, | 31,650 | |
| Pork, (in barrels), | 38,221 | " | 133,776 | 10 |
| Flour, | 38,066 | " | 81,836 | 18 |
| Flax & Hemp, | 559,014 | Pounds, | 27,950 | |
| Tobacco, | 198,745 | " | 6,210 | 15 7½ |
| Wool, | 393,138 | " | 39,313 | 16 |
| Maple Sugar, | 1,694,261 | " | 28,237 | 13 8 |
| Butter, | 2,228,501 | " | 104,278 | 7 2 |
| Cheese, | 60,482 | " | 2,520 | 1 8 |
| Fulled Cloth, | 240,208 | Yards, | 54,046 | 16 |
| Linen, | 423,024 | " | 26,939 | |
| Flannel and Cloth not fulled, | 227,438 | " | 28,429 | 15 |
| Bulls, Oxen and Steers, | 27,501 | | 137,505 | |
| Milch Cows, | 109,647 | | 438,588 | |
| Calves and Heifers, | 51,924 | | 38,943 | |
| Horses, | 57,729 | | 865,935 | |
| Sheep, | 184,893 | | 92,446 | 10 |
| Pigs, | 81,202 | | 101,502 | 10 |
| <hr/> | | | | |
| Total, | | | £4,449,159 | 18 0 |

These figures are considerably under the real amount, but they do not the less give to the produce of these agricultural districts a value of £4,449,159 18 0, to which must be added

the value of the pot-ash, sawed lumber, fire-wood, poultry, eggs, fish, &c., exported in considerable quantities to the United States.

EFFECT OF RAILWAYS ON PROPERTY.

But it may be said that Railways trust more for their prosperity to the future than to the present ; they give to the future life and wealth, and to real property a value which it never would never have attained without them. This truth has been proved in a most astonishing manner in the state of Michigan. The Southern Michigan and Central Michigan Railroads were finished as far as Chicago in 1852. The amount of real property assessed in the State was, in

| | |
|-----------|--------------|
| 1851, | \$21,526,957 |
| 1853, | 75,933,495 |
| Increase, | \$55,408,538 |

Real property has more than trebled in value in the State of Michigan in the space of two years. Now we shall proceed to shew you that this increase is solely due to Railways. The Counties through which no Railways run have remained nearly in the same state as they were in formerly, while the others have acquired extraordinary value.

COUNTIES CROSSED BY THE CENTRAL MICHIGAN RAILROAD.

| | 1851. | | 1853. | |
|------------|------------|----------|------------|----------|
| Wayne, | 3,833,213 | Dollars, | 16,897,331 | Dollars. |
| Westenaw, | 2,561,373 | " | 7,395,000 | " |
| Jackson, | 1,516,459 | " | 4,810,655 | " |
| Calhoun, | 1,637,437 | " | 3,648,816 | " |
| Kalamazoo, | 1,894,182 | " | 4,810,655 | " |
| Van Buren, | 541,663 | " | 1,683,561 | " |
| Total, | 11,984,427 | Dollars, | 39,246,018 | Dollars. |

COUNTIES CROSSED BY THE SOUTHERN MICHIGAN RAILROAD.

| | 1851. | | 1853. | |
|---------------|-----------|----------|------------|----------|
| Monroe, | 960,344 | Dollars, | 1,336,000 | Dollars. |
| Saint-Joseph, | 1,088,344 | " | 4,119,567 | " |
| Fillstate, | 993,240 | " | 4,167,225 | " |
| Branch, | 837,280 | " | 4,118,674 | " |
| Berriam, | 875,749 | " | 2,874,354 | " |
| Lenawee, | 411,666 | " | 1,209,448 | " |
| Total, | 5,166,623 | Dollars, | 17,825,269 | Dollars. |

These twelve Counties, alone, carry off three fourths of the total increase, instead of one seventh which would be their share, if the increase had been uniform throughout the whole State.

WATER-POWER, MANUFACTURES, &c.

To give an idea of the sources of wealth which your road is destined to open out, all we have to do is simply to enumerate the principal rivers which flow into the St. Lawrence between Montreal and Quebec, and each of which possesses almost unlimited water-power.

The *Montmorenci* is not on the line of your road,* but it reaches the St. Lawrence at a very short distance from Quebec, by one of the most magnificent falls in the world. The waters of this river work immense sawing establishments which furnish timber to the markets of Europe and the United States ; from its mouth to its very source there is a succession of rapids, falls and cascades, and consequently an interminable water-power.

It is intended shortly to construct a suspension bridge on the very angle of the Montmorency falls, from which the visitor will be able at a single glance to admire a work of art, a wonder of nature, and the majestic scene around him.

The *Saint-Charles* furnishes water-power to a great number of grist and saw mills ; two paper manufactories are shortly to be erected on it, and the construction of the Quebec Docks will create new water-power.

The *Cap-Rouge*.—Several grist and saw mills are worked by this River, at the mouth of which there is a large timber dépôt.

The *Jacques Cartier*, a powerful River, abounding in falls, cascades and rapids from its mouth to its source. It contains a magnificent water-power at the very point at which it will be crossed by your Railway. To give you an idea of the value of this River as a moving power, we need only state that Mr. Blaicklock, one of the Government Surveyors, established in 1850 that its average height from its source is 3000 feet.

Between the *Jacques-Cartier* and the *Cap-Rouge* Rivers we have the fine building stone quarries of *Pointe-aux-Trembles*, Mr. Dubord's extensive Ship-yard, and a pail-manufactory.

The River *Portneuf*, of sufficient extent, is not so remarkable for the volume of its waters as for the great facility with which it may be turned to use as a moving power. Manufactories of every description : paper, grist and saw mills, etc., are to be found on this River. Mr. MacDonald's paper manufactories absorb a capital exceeding £30,000, and although at work night and day during six days of the week, they are not sufficient to meet all demands. Mr. MacDonald's paper and the rough materials required in manufacturing it, are brought there during the summer in a small steamer; and in the winter the transport is carried on at great cost by means of horses. This branch of industry, which will eventually become an extensive one, is thus thrown back for want of rapid, easy and continuous communications. Your Railway will run at a distance of a few arpents from Mr. McDonald's establishment, which at this very moment can transmit by it six tons daily. There seems to be a disposition to erect on the *Portneuf* machines for preparing flax and hemp, and to attempt on its banks the culture of those two plants.

There is an iron mine at the Village of *Portneuf*, at the mouth of the River, a specimen of which took the prize at the Industrial Exhibition of Montreal in 1854, and would probably

have done so at the Universal Exhibition in 1852 if it had not got broken in being extracted from the mine.

The Village of Portneuf is a port for coasting craft. It is intended to establish a regular ferry at this place. Portneuf corresponds with the Platon where there is a magnificent wharf belonging to Mr. Joly, the seignior. The Platon is the stopping place for the mail, and the large steamers ; so that at this very place your Railway will draw off all the commerce of the large and rich County of Lotbinière, which is generally carried on in open boats, left to the mercy of the tides and of contrary winds.

Four miles and a half further on, your road runs close to the inexhaustible stone quarries of Deschambault. There is no finer stone than this, nor is there any which better retains its colour under the influence of the climate.

The *Lachevrotière*, on which there are carding, fulling, saw and grist mills, quite close to the St. Lawrence.

At some distance behind Deschambault is the *Saint-Anne* which gradually approaches the Jacques Cartier towards its source, and beyond that the *Black River* which discharges itself into the St. Anne, close to the mouth of the latter ; from these Rivers sawed lumber is brought to the St. Lawrence, partly by means of horses.

The *Saint Anne* is larger than the Jacques-Cartier and its banks abound in red pine and other timber of every description. According to Mr. Blaiklock, this river, like the Jacques Cartier, flows from a mean height of 3000 feet, and its water-power is unlimited.

The *Batiscan*, another large River, the mouth of which serves as a Port for coasting craft, and on which there are mills of every description. Mr. Price owns large lumbering establishments on the River *des Envies*, one of the tributaries of the Batiscan.

The *Champlain*. This River possesses great water-power and works grist and saw mills, as well as Mr. Richardson's large Tannery.

The Saint Maurice. We have already spoken of this River, the mouth of which is at the town of Three Rivers itself. Three Rivers will be the point of the Saint Lawrence at which your Road will receive, by means of small steamers, the trade of the Counties of Nicolet and Yamaska,

The Yamachiche which is sufficiently extensive and affords water-power to grist and saw mills.

River du Loup which flows quite close to the celebrated St. Léon mineral springs; it furnishes water-power to the large sawing establishments of Mr. Parker and of Mr. N. C. Faucher, and to several grist-mills. About 350,000 pieces of sawed lumber come out of this River annually.

The Maskinongé affords water-power to several grist and saw-mills, and to a hat-manufactory.

The Bayonne which flows into the St. Lawrence quite close to the large village of Berthier. This place is probably another point of the St. Lawrence at which a steam ferry will be established between Sorel and the Richelieu.

In the County of Berthier, on the River *L'Assomption*, is the flourishing village of Industry, founded and established by Mr. Joliette of honored memory. At this village, which contains a population of more than two thousand souls, there is considerable water-power by means of which two saw-mills are worked, which saw from 70 to 80 thousand planks annually; three grist-mills, containing ten runs of stones which grind 70,000 bushels of wheat annually, two oat-mills, one pail-manufactory, a foundry, a machine for turning iron, a fulling, pressing and carding mill.

The Industry and Lanoraie Railway which unites with the Rawdon Railway at the Industry Village, reaches the St. Lawrence at Lanoraie, and intersects at that point the North Shore Railway. This road, which, so far, has been in operation during the summer only, carries 800 passengers a week. The number of cars employed every day in the transport of freight and passengers, is computed at 35 to 40 daily. And yet this

Road is not sufficient for the lumber trade, part of which has to come down by the River *L'Assomption* or is drawn to the St. Lawrence in ordinary vehicles.

The *L'Assomption* River, which is navigable for steamers during several months of the year, to a distance of nine miles in the interior, or to the extensive and wealthy Village of Assomption. This River affords water power to an immense number of mills and manufactories of every description, and flows through the centre of a most fertile country.

The Montreal and Bytown Railway Company, in visiting the sawing establishments worked by the Rivers which flow into the Ottawa, on the North Side, between Montreal and Bytown, calculated that it would require 65 cars daily to transport the produce of those establishments alone. From this calculation you may easily judge of the amount of traffic which your Road will derive from the sawing establishments worked by the Rivers which we have just enumerated.

LAND CARRIAGE.

Fifty thousand vehicles passed through the St. Foy and St. Charles Turnpikes alone, during the year 1853. This number, which shows the amount of trade carried on between Quebec and the nearest point of the North Shore, is sufficient to give you an idea of the general activity which will exist, when a direct and easy communication shall have been established between that City and all points of the North Shore.

RECAPITULATION.

Now, if we recapitulate the probable receipts of the North Shore Railway, we have from the

| | NET PROFIT. |
|---|-------------|
| Population of both shores, | £185,000 |
| Ottawa trade, | 63,000 |
| St. Maurice trade, | 15,000 |
| Trade and passengers which will be drawn off the St. Lawrence route, | 50,000 |
| Total, | £313,000 |

This calculation is by no means exaggerated, inasmuch as the Richmond Railway, with less advantageous conditions, expect an annual gross receipt of at least £300,000. Now 316,300 gives an annual interest of more than 41 and 7 tenths per cent on the cost of the road.

But if, notwithstanding the low figure at which we have calculated the probable net revenue of your Road, we divide that revenue by THREE, you will have an annual interest of more than 13 and 9 tenths on the cost of the road.

Is there any road, then, on the American Continent which possesses such advantages as yours, and with such facts before us can we entertain any doubt of its success?

The whole, nevertheless, humbly submitted.

JOSEPH CAUCHON,
Chairman.

Presented and adopted, }
17th February 1854. }

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